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PROBLEMS FOR SOLUTION.

ALGEBRA.

113. Proposed by G. B. M. ZERR, A.M., Ph.D., Professor of Mathematics and Science, Chester High School, Chester, Pa.

Find a square number consisting of 24 figures such that the numbers formed by the first twelve figures and the last twelve figures, respectively, are consecutive, and *vice versa.*

114. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics in Boys' High School, Reading, Pa.

$$\left.\begin{array}{l} bx^3=10a^2bx+3a^3y \\ ay^3=10b^2y+3b^3x \end{array}\right\}$$

⁂ Solutions of these problems should be sent to J. M. Colaw not later than February 10.

CALCULUS.

104. Proposed by M. E. GRABER, Heidelberg University, Tiffin, Ohio.

Find the differential equation corresponding to $\sqrt{(1-x^2)}+\sqrt{(1-y^2)}=[a(x-y)]$.

105. Proposed by CHAS. C. CROSS, Whaleyville, Va.

From all points in a straight line passing through the center of a given circle tangents are drawn to the circle. If the bases and vertices of all the angles thus formed are made to coincide; required the equation of the curve passing through the langent points.

⁂ Solutions of these problems should be sent to J. M. Colaw not later than February 10.

MISCELLANEOUS.

83. Proposed by ALOIS F. KOVARIK, Instructor in Mathematics and Physics, Decorah Institute, Decorah, Iowa.

Segment's area of a circle whose radius is 5 inches is 28.56 square inches. Find the chord.

84. Proposed by COOPER D. SCHMITT, A. M., Professor of Mathematics, University of Tennessee, Knoxville, Tenn.

Prove that $e^{\pi}+e^{-\pi}=2[1+2^2][1+(\frac{2}{3})^2][1+(\frac{2}{5})^2]$...... ad infinitum.

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